

The Influence Of Individual Internal Protective Factors On Student's Academic Resilience

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ABSTRACT

The purpose of this study to examine the effect of individual internal protective factors on students' academic resilience. This research is quantitative research with survey method use distribute questionnaires that have fulfilled the process and requirements of the validity and reliability test. This research was conducted on 12th grade social studies high school students in the provinces of DKI Jakarta, Central Java, and the Special Region of Yogyakarta uses the proportional random sampling technique. The analysis of this study uses multiple regression analysis techniques. The results showed that the individual's internal protective factors consisting of perceptions about online learning, digital literacy and self direct learning were able to affect the level of academic resilience by 64.8%. The individual internal protective factor that has the most significant effect on student resilience is self-direct learning with an academic contribution of 59.62%. This study can provide useful information in the form of the importance of positive perceptions about online learning and the need to increase digital literacy and self direct learning for academic resilience so that learning loss at students can be overcome after going through the learning in pandemic era.

KEYWORDS perceptions about online learning, digital literacy, self direct learning, academic resilience.

I. INTRODUCTION

The Covid-19 pandemic has changed the order of education administration, which was originally face-to-face learning in schools to be online learning. The implementation of online learning is seen as much easier to do than face-to-face learning (Semradova & Hubackova, 2016). This is supported by the conclusion of Alhajri's (2016) research in Kuwait that the perceptions of students and teachers towards online learning are positive and interesting. Students like the flexibility and ability to access learning materials so that there is communication and collaboration between educators and students. The shifting learning patterns caused many difficulties in learning that are experienced so that it affects

students' learning absorption which is known as learning loss (Beatty et al., 2020; Donnelly & Patrinos, 2021; Engzell et al., 2021; Kashyap et al., 2021; Li et al. ., 2020; Yadav, 2021; Zakharova et al., 2021; Kaffenberger, 2021). The Education and Development Forum (2020) defines learning loss as a condition in which a person loses knowledge and skills academically due to a prolonged or unsustainable educational process.

Based on a survey by the Indonesian Child Protection Commission (KPAI) conducted on 1,700 students, it was stated that 76.7% of student respondents did not like online learning. The existence of learning loss and difficulties in online learning requires students to be able to

quickly adapt and have sufficient resilience so that they are not left behind in learning, one of which is that students must have good academic resilience. Resilience is also defined as a person's ability to adapt in difficult situations he faces (Reivich & Shatte, 2002). Connor and Davidson (2003) argue that individuals who have resilience will be able to face their difficulties and are also able to adapt positively even in negative events. In fact, there are not a few students who do not have academic resilience, meaning they are less

able to deal with problems so that they experience obstacles in learning. This is illustrated by the results of a preliminary survey conducted by three provinces where student learning outcomes for the last three years are quite stable, namely DKI Jakarta, Central Java, and the Special Region of Yogyakarta with 750 students as respondents as measured as the academic resilience scale from Cassidy (2016) as shown in table 1 as follows:

Tabl 1 Academic Resilience Level 12 Social Science High School Students

Academic Resilience Level	Total students	Percentage
Low ($X < 11,89$)	430	57,33
Medium ($11,89 < X \leq 15,90$)	212	28,27
High ($X > 15,90$)	108	14,40
Total	750	100

Source: processed data, 2021

Based on table 1, it can be said that students tend to have low academic resilience with a percentage level of 57.33%. According to Jowkar, Kojuri, Kohoulat., and Hayat (2014) and Rojas (2015) academic resilience can be influenced by two factors, namely risk factors and protective factors. Risk is a factor that can cause a person to experience disturbances, difficulties, stress to display negative behavior. Risk factors include poverty, low economic status, family dysfunction, conflict in the family, low social support, lack of parenting skills. Protective factors that focus on defense and protection from risk factors in the face of adversity. When someone experiences a bad situation, the protective factor becomes very important (Zautra, Hall, & Murray, 2010: 3-30). Protective factors can arise from oneself, family and community (Everall: 2006). Risk factors and protective factors each consist of internal factors and external factors. Individuals as internal factors and families as external factors can each play a

role as a risk factor as well as a protective factor that affects academic resilience.

Research on academic resilience is growing on the variables of risk factors, protective factors related to academic resilience, the impact of academic resilience to the process that explains how positive adaptation is achieved. This is based on previous research that proves that academic resilience has benefits in several lives, such as being positively correlated with academic performance (Deb & Arora, 2012; Mwangi et al., 2015), negatively correlated with academic fatigue or academic fatigue (Ooyo et al. ., 2015), negatively correlated to academic fatigue or academic burnout (Ooyo et al., 2015). al., 2018; Ríos-Risquez et al., 2016) and helped improve academics despite difficulties (Martin & Marsh, 2006). Ismail and Ulas (2020) also state the same thing that students who have resilience tend to be able to maintain their learning achievements. Those who are less resilient will run the risk of being applied to poor learning performance.

A resilient student self can be formed from oneself through individual cognitive abilities, self-concept, self-esteem, and social competencies that describe beliefs, attitudes, values and capacities produced as a form of self-development (Everall, 2006; Jowkar, Kojuri, Kohoulat, and Hayat, 2014) one of them is with students' perceptions of online learning. Students who carry out online learning have positive perceptions and responses because they receive support in their implementation. A positive perception in dealing with online learning will make students' academic resilience quite good. Guera, et al. (2018) stated that students' perceptions of the use of technological devices provide learning feedback so that they can foster academic resilience. Positive students' perceptions of online learning that encourage students' readiness to acquire and develop important competencies in online learning (Thongsri, Chootong, Tripak, Piyawanitsatian, Saengae: 2020). Conversely, if students have negative perceptions because they are unable to adapt to online learning methods, it will have an impact on the feelings, physical, and environmental reactions felt by these students which is a reflection of low academic resilience.

Academic resilience is also influenced by another internal protective factor, namely digital literacy. Carbonell (2013) & Irhandyaningsih (2020) state that one of the success factors for online learning is digital literacy. D'Haenens, Vandonink, and Donoso (2013) stated that someone who is resilient in the digital world will be seen from the way someone manages technological abilities when interacting with the digital world. Competence in digital literacy is defined as the ability to use and manage technology, information and communication systems (Irhandyaningsih, 2020). This is different from the research results of Ramadhana, et al. (2021) that individuals do need to have an assessment of digital literacy skills in order to follow the online learning process well, but

digital literacy has not been one of the factors that affect academic resilience.

Academic resilience in online learning during the pandemic also demands independent learning. The concept of self direct learning is an approach that encourages students to take responsibility and control over their thinking and self-management in the learning process (Hawkins, 2018). The same thing was also stated by Lokanath, Gupta, and Shree (2020) that students who successfully take the initiative in online learning with their abilities will gain knowledge from online learning. Merriam (2001), Canipe and Fogerson (2006) stated that independent learning is better applied to adult education, namely higher education. Similarly, Taylor's (2001) research shows that independent learning will not work well outside the classroom due to a lack of control from educators.

Based on these various problems, it is necessary to examine the influence of individual internal protective factors on academic resilience in terms of perceptions in the form of perceptions about online learning, in terms of competence in the form of digital literacy, and in terms of encouragement in the form of self-direct learning as a novelty in this research. Thus, the purpose of this study is to examine the influence of internal protective factors in the form of perceptions about online learning, digital literacy, and self-direct learning on students' academic resilience, either partially or simultaneously.

II. RELATED STUDIES

Academic Resilience

The concept of resilience is well known from Bandura that self-efficacy is the basis for explain resilience (Fitrah, Fatihah, and Madihie, 2020). Cassidy (2016) states that academic resilience is characterized by students who have the ability to rise from academic failure and achieve success even though other things are in bad situations. Students who have academic resilience can solve

problems, see difficulties as opportunities, adjust learning methods, seek learning from other learning sources, and avoid negative responses. Several studies have shown that students with high levels of resilience show better academic achievement (Hanson and Kim, 2007; Kwok et al., 2007; Dotterer and Lowe, 2011; Sagone and Elvira, 2014). Other studies also show that students with higher levels of resilience show better psycho-social and emotional development than other students who have lower levels of resilience (Calkins et al., 2007; Smith and Zautra, 2010; Stiles et al., 2016).

Cassidy (2016) states that on The Academic Resilience Scale – 30 (ARS 30) there are three aspects that are used to measure students' academic resilience. First, persistence. Perseverance is related to the character and reactions of students which involve working hard and trying optimally, having a strong determination and not giving up to achieve success, sticking to plans and goals, taking advantage of feedback, solving problems innovatively, and understanding adversity as an opportunities.

Second, self-reflection and adaptive seeking for help. This dimension reflects strengths and weaknesses, changes approaches to learning, adaptively seeks help when faced with difficulties, receives support and gets encouragement, monitors effort and achievement and provides rewards and punishments. There is a clear parallel between these factors and the factors previously identified by previous research by Wagnild and Young (1993) namely that independence involves believing in one person and recognizing one's strengths and weaknesses. According to Lamond et al. (2008) regarding the ability to adapt and according to Newman (2002) about adaptive seeking help.

Third, negative affect and emotional response. The negative affective and emotional response dimensions refer to individual characters and reactions such as anxiety, stress,

and individual attempts to avoid negative responses. There are clear parallels in the similarity of the negative influence and emotional response dimensions of Cassidy (2016) with the dimensions previously identified by previous studies of Connor and Davidson (2003) and Lamond et al. (2008) that anxiety, avoidance of negative emotional responses, optimism and hopelessness are similar to acceptance of negative impacts. Dimensions of negative influence and emotional response are almost the same as the dimensions of calmness from Martin and Marsh (2006).

Perceptions of online learning

The concept of perception about online learning comes from attitudes towards the internet. Research by Alzahrani & O'Toole (2017), Joyce & Kirakowski (2015), and Wei & Chou (2019) has shown that students' attitudes towards the internet are important for future use of technology in online learning settings. Research results Favale, et al. (2020) stated that online learning can be especially meaningful during a pandemic situation because it forces students to suddenly switch to digital means of learning. In harmony with Guerra, et al. (2018) stated that students' perceptions of the use of technological devices provide learning feedback so that they can foster academic resilience.

Wang, et al. (2021: 549-562) explained that students feel depressed because of their inability to adjust to online learning and are more worried about final exams. Negative perceptions certainly affect students' fighting power. Puspaningtyas and Dewi (2020) stated that positive perceptions in dealing with learning will make students' academic resilience quite good. On the other hand, if students have negative perceptions because they are unable to adapt to online learning methods, it will have an impact on the feelings, physical, and environmental reactions felt by students as Prieto, et al., (2020) stated that the Covid 19 pandemic affected daily routines.

students such as: personal life, academic workload, and their adaptability to online learning. Changes in learning methods tend to change students' routines not on the development of cognitions and skills. Students can sleep more than usual. Students stated that the study load was much higher when learning online, and they needed more study time.

Students' positive perceptions about online learning encourage students' readiness to acquire and develop important competencies in online learning (Thongsri, Chootong, Tripak, Piyawanitsatian, Saengae: 2020). Conversely, if students have negative perceptions because they are unable to adapt to online learning methods, it will have an impact on the feelings, physical, and environmental reactions felt by these students which is a reflection of low academic resilience.

Digital Literacy

Ferrari & Redecker (2012) presents a comprehensive definition of digital literacy is attitudes and skills needed to identify, locate, access, store and organize information. Online learning is mediated by devices and networks so that individuals need to have an assessment of their abilities in computer technology or commonly referred to as digital literacy. Mackey, et al. (2012) & Guerra, et al. (2018) stated that digital literacy as a form of using technology in blended learning in crisis situations provides new ways to work and interact so as to increase academic resilience in overcoming difficulties. In the research of Ramadhana, et al (2021), digital literacy affects academic resilience as a form of online learning readiness. Digital literacy encourages students to actively seek help and support in difficulties (such as actively communicating on social media with other students in the class or with teachers).

Self direct learning

Gibbons (2002) states that self-directed learning is an effort made by a student to improve knowledge, skills, achievements related to self-development where individuals use methods in many situations and in a relatively independent time. The main problem in implementing independent learning is that it requires students who are proactive, able to be flexible in choosing learning strategies, and must have activities to unite and control the learning progress of students (de Bruin & van Merriënboer, 2017).

III. RESEARCH METHOD

This study used a quantitative approach with a survey method with multiple regression analysis techniques using the IBM SPSS 26 tool. The population of this research is grade 12 students majoring in Social Sciences in high school because they have been through online learning the longest during the pandemic and experienced learning loss so that low academic resilience will affect their readiness to enter college and the fighting power of students in overcoming learning difficulties. Sampling using proportional random sampling technique using google form in three provinces, namely DKI Jakarta, Central Java, and the Special Region of Yogyakarta. The three provinces are quite stable in student learning outcomes for the last three years as seen from the results of the Economics National Examination for the last three years stable at ranks 1,2, and 3. The urgency of the importance of resilience in studying economics is that humans are able to meet their needs with limited sources of satisfying needs. (Mardapi, 2003) and Economics is one of the most important core subjects for 21st century skills in order to equip students to think, work, solve problems, communicate, and contribute effectively throughout life in the future (Boyer & Crippen, 2014).). The target number of respondents for each province is according to table 2

Table 2. Data on the number of respondents for Social Studies Class 12 Social Studies students in three provinces

Province	Jumlah Siswa
DKI Jakarta	113
Central Java	251
Special Region of Yogyakarta	35
Total	398

Source: Processed data, 2021

IV. DATA COLLECTION AND ANALYSIS

Data was collected using a Likert scale questionnaire which was distributed online to students. The instrument has met the process and

requirements of the validity and reliability test. Table 2 presents research instruments that have previously been tested for validity and reliability prerequisites.

Table 2. Research instruments

Variable	Indicators	number of statements	Source
Perceptions of online learning	1. Accessibility	18	Wei & Chou (2020)
	2. Interactivity		
	3. Adaptability		
	4. Knowledge acquisition		
	5. Ease of catching		
Digital Literacy	1. Basic digital literacy skills	8	Bawden (2008)
	2. Background knowledge information		
	3. ICT skills		
	4. Attitudes and perspectives of information users		
Self Direct Learning	1. Level of consciousness	12	Cadorin, et al. (2013)
	2. Attitude		
	3. Motivation		
	4. Learning strategies		
	5. Learning method		
	6. Study activities		
	7. Interpersonal skills		
	8. Construct knowledge		
Academic Resilience	1. Perseverance	17	Cassidy (2016)
	2. Self-reflection and seek help adaptively		
	3. Negative affect and emotional response		
TOTAL		55	

V. FINDINGS

F Test

Table 3. F Test Results

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10847.561	3	3615.854	241.829	.000 ^b
	Residual	5891.135	394	14.952		
	Total	16738.696	397			

Source: Processed data, 2022

Based on table 3 of the results of the F test above, the Fcount is 241,829. The inner table in this study uses a 95% confidence level, $\alpha = 5\%$, k (number of independent and dependent variables) = 2, df 1 (k-1) or 4-1 = 3, and df 2 (n-k) or 398- 4 = 394. The results obtained for Ftable are 2,628. Based on the results of the SPSS output in table 4.10 above, the value of Fcount > Ftable 2.628

with a probability value of $0.000 < 0.05$. This means that H0 is rejected and Ha is accepted. Therefore, the perception variables about online learning, digital literacy, and self-direct learning together have an effect on students' academic resilience..

t Test

Table 4. t Test Results

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	15.85	2.269		6.986	.000
	1					
	Perceptions about online learning (X1)	.237	.028	.318	8.521	.000
	Digital literacy (X2)	.083	.030	.103	2.749	.006
	Self-Direct Learning (X3)	.504	.037	.520	13.796	.000

Source: Processed data, 2022

Based on table 4 the results of the t-test above, it is obtained that tcount X1 is 8,521, tcount X2 is 2,749, and tcount X3 is 13,796. t table in this study uses a 95% confidence level, $\alpha = 5\%$, k (number of independent and dependent variables) = 2, df 1 (k-1) or 4-1 = 3, and df 2 (n-k) or 398- 4 = 394. The results obtained for ttable are 1.966. Based on the results of the SPSS output in table 4 above, the tcount for X1, X2, and X3 > ttable

1,966 with a probability value of $0.000 < 0.05$. This means that H0 is rejected and Ha is accepted. Therefore, the perception variables about online learning, digital literacy, and self-direct learning partially affect students' academic resilience.

Coefficient of Determination Test (R Square)

Table 5. Coefficient of Determination of Perception about Online Learning, Digital Literacy, Self Direct Learning with Student Academic Resilience

Model Summary				
Model	R	R Square	Adjusted Square	Std. Error of the Estimate
1	.805 ^a	.648	.645	3.867

Source: Processed data, 2022

Based on table 5, the value of the coefficient R² (R Square) is 0.648. This means that the percentage of the contribution of the influence of the independent variable on the dependent variable is 64.8%. The variation of the student's academic resilience variable can be explained by

the variation of the perception variable about online learning, digital literacy, and self-direct learning by 64.8%, while 35.2% is explained by other factors.

Effective Contribution

Table 6. Effective Contribution of Perceptions about Online Learning, Digital Literacy, Self Direct Learning with Student Academic Resilience

Independent Variable	Effective contribution
Perceptions about online learning	31,80%
Digital literacy	8,63%
Self-Direct Learning	59,62%
Total Sumbangan Relatif	100%

Sumber: Processed data, 2022

Based on table 6, the perception variable about online learning is able to explain academic resilience of 31.80% by taking into account the existence of other variables not examined in the entire population. The digital literacy variable is able to explain academic resilience of 8.63% by taking into account the existence of other variables not examined in the entire population. The self-directed learning variable is able to explain academic resilience of 59.62% by taking into account the existence of other variables not examined in the entire population. The self direct learning variable is the variable that has the largest effective contribution in explaining academic resilience in the entire population.

VI. DISCUSSION

The effect of perceptions about online learning on students' academic resilience

The results of the t test show a number of 8,521 for perceptions about online learning. The value of tcount is 8,521 > ttable 1,966 with a probability of 0.000 < 0.05. This shows that the perception variable about online learning has a significant influence on the student's academic resilience variable. The perception variable about online learning has a significant effect on students' academic resilience. The results of this study are consistent with research by Alzahrani & O'Toole (2017), Joyce & Kirakowski (2015), and Wei & Chou (2019) indicating that students' attitudes towards the internet are important for future use of technology in online learning settings. Students' positive perceptions about online learning encourage students' readiness to acquire

and develop important competencies in online learning (Thongsri, Chootong, Tripak, Piyawanitsatian, Saengae: 2020). Conversely, if students have negative perceptions because they are unable to adapt to online learning methods, it will have an impact on the feelings, physical, and environmental reactions that are felt by these students.

Based on the calculation of the effective contribution, the percentage of the influence of perceptions about online learning is 31.80% on students' academic resilience. The contribution of online learning aspects to academic resilience is explained by five indicators of perceptions about online learning including: accessibility, interactivity, adaptability, knowledge acquisition, and ease of capturing material. The accessibility indicator in this study achieved an achievement of 7.88%. Accessibility describes a student's perception of unlimited and free access to online learning materials or resources. Almahasees, Mohsen, and Amin (2021) explain that the perception of undergraduate students who show online learning as a learning resource that is flexible and useful in various situations. Most of them agree that online learning helps students 24 hours to have access to learning materials at any time. Adedoyin and Soykan (2020); Gautam (2020) explains the same thing that online learning offers accessibility capabilities to students to access materials online all the time.

The interactivity indicator in this study achieved an achievement of 16.09%. Interactivity describes the perception of students' interactions with teachers or peers, including asking questions, sharing different opinions, and discussing learning topics or problems. The importance of interactivity on perceptions of online learning is demonstrated by the results of AuCoin and Wright's (2021) research that participation rates in online learning are high for various reasons, including educator persistence and involvement. Educators in an online environment can strengthen connections and

relationships with students as a form of interactivity so that learning difficulties faced by students can be overcome. The interactivity indicator as part of the perception of online learning is the highest indicator that affects students' academic resilience. Interactivity on perceptions of online learning needs to be considered because Okere's (2021) research shows that an effective online course must provide and support an interactive and engaging learning environment. This study recommends the use of synchronous online methods, with regular class meetings, provision for breakout groups, and most importantly, that educators make themselves available to help students quickly resolve any course-related issues students may encounter online.

The indicator of adaptability in this study achieved an achievement of 15.19%. The form of adaptability in this study is similar to the results of research by Wong, Kwan, Wang, and Luk (2013) that more and more higher education institutions are integrating e-learning systems into their standard pedagogy to facilitate student learning. The findings show that students tend to use social networks to complete learning tasks. Teachers can also design several learning activities that are carried out on social networks and in collaboration with the Learning Management System (LMS). The adaptability of integrating e-learning systems can promote online learning communities and enhance collaborative learning among students. The form of adaptability as control over student learning on perceptions of online learning as described by Pramana, Handayani, Raharjo, and Rahayu (2022) regarding the relationship between perceptions of online learning and digital literacy. Students who are familiar with information technology will find it easier to use the platform used for online learning and will not experience many obstacles, so the perception is positive.

The indicator of knowledge acquisition in this study obtained an achievement of 10.26%.

Knowledge acquisition indicators describe students' perceptions of their own ability to acquire the knowledge they seek to broaden their horizons. During online learning, the role of internet technology is very instrumental in providing information for students. Sources of knowledge can come from the site of course service providers, online tutoring service providers, search engine sites such as Google.

The ease of catching indicator in this study obtained an achievement of 14.30%. The percentage of academic stress experienced by students in the research sample is 63.8%. This situation certainly affects the ease of capturing material and students' academic resilience. This is similar to the study of Fyllos, et al. (2021) that students are less satisfied with their level of active participation in the second semester during online lectures, even though they feel less stressed attending lectures from home. Online learning is generally considered efficient, in this study students answered that their ability to concentrate decreased significantly during online lectures from home, and they are more likely to lose focus during online lectures due to fatigue or boredom. Overall, students felt that they understood the basic elements of the course, despite being less satisfied with the quality of course delivery in the second semester. Difficulty in capturing material is also explained from the research results of Sarfraz, et al (2022) that online learning for medical students has many challenges, such as: poor motivation, difficulty in understanding content, limited focus on orientation practice, and lack of technology skills.

Based on the study of the influence of perceptions about online learning, student characteristics are very important because they affect the success of online learning. Learners' positive perceived attitudes towards online learning contribute to success (Adams, 2020; Taghizadeh and Hajhosseini, 2020). The positive perception of students about online learning allows them to feel more support and benefits in

online learning which improves the quality of their learning (Wei & Chou: 2020). Online learning as an effective educational model that offers access to course materials, efficient time management, cost effectiveness, flexibility to learn from anywhere, and opportunities to collaborate and work with colleagues and instructors to achieve learning outcomes (Ali, 2020; Hung, et al., 2020).

The effect of digital literacy on students' academic resilience

The results of the individual parameter significance test (t test) show that the digital literacy variable has a significant influence on students' academic resilience. The results of the t test show a number of 2,749 for digital literacy. The value of $t_{count} 2.749 > t_{table} 1.966$ with a probability of $0.006 < 0.05$. This shows that the digital literacy variable has a significant influence on the student's academic resilience variable.

Based on the calculation of the effective contribution, the percentage of the influence of digital literacy is 8.63% on students' academic resilience. The influence of digital literacy is the lowest compared to the two independent variables studied, namely perceptions about online learning and self-direct learning. The low contribution of the influence of digital literacy variables on academic resilience is in line with the results of research by Ramadhana, et al (2021) which explains that digital literacy is one of the factors that influence academic resilience. Digital literacy encourages students to be active in seeking help and support in difficulties (such as actively communicating on social media with other students in the class or with teachers). The contribution of digital literacy variables to the research of Ramadhana, et al (2021) is only limited as a complementary factor that affects academic resilience as well as this research.

The contribution of digital literacy aspects to academic resilience is explained by four indicators of perceptions about online

learning including: basic digital literacy skills (17.03%), background knowledge of information (16.83%), ICT skills (27.69%), and attitudes and the perspective of information users (8.75%). ICT skill indicators as an indicator of digital literacy that have the most influence on students' academic resilience. This is as in the research of Pramana, Handayani, Raharjo, and Rahayu (2022) that students who are familiar with information technology will find it easier to use the online learning platform used and will not experience many obstacles. According to Thongsri, Chootong, Tripak, Piyawanitsatian, and Saengae (2020) online learning encourages students' readiness to acquire and develop important competencies. Students who have knowledge and skills related to technology (ICT), and have high self-confidence, students will achieve maximum learning outcomes.

Digital literacy has more influence on the implementation of online learning than students' academic resilience where students can manage academic stress. Shannon (2015) explained that online learning is mediated by devices and networks, therefore individuals need to have digital literacy to use internet technology. The results of research by Hung, Chou, Chen, and Own (2010) also explain the same thing that if students have adequate readiness to access technology and adapt to appropriate learning situations, online learning can potentially be more effective and students need less time to study. . The effectiveness of online learning is influenced by student readiness which can actually vary between students.

The effect of self direct learning on students' academic resilience

The results of the individual parameter significance test (t test) showed that the self direct learning variable had a significant effect on students' academic resilience. The results of the t test show a number of 13.796 for self direct learning. The value of tcount 13.796 > ttable

1.966 with a probability of 0.000 <0.05. This shows that the self direct learning variable has a significant influence on the student's academic resilience variable.

Barriers to online learning are on the independence of students' learning so that initiatives are needed in understanding learning needs, setting learning goals, identifying learning materials, and applying appropriate learning strategies to evaluate learning outcomes. Students have responsibility and control over their own thinking and self-management in the learning process (Hawkins, 2020: 457). The study conducted by Lokanath, Gupta, and Shree (2020: 8) shows that students who successfully take the initiative in online learning at their own pace, students will gain knowledge from learning. The existence of independent learning in the face of learning barriers will increase students' academic resilience.

Based on the results of the calculation of the effective contribution, the percentage of the influence of self direct learning is the highest compared to the other two independent variables studied, namely perceptions about online learning and digital literacy. The effective contribution of self direct learning to students' academic resilience is 59.62%. The contribution of self direct learning to academic resilience is explained by eight indicators where the motivation indicator dominates as an aspect of self direct learning to students' academic resilience. The motivation for self-direct learning on students' academic resilience is the ability to respond to new learning, respond to the success of others, the ability to organize learning activities, take advantage of opportunities, and the desire to develop and improve self-learning methods.

The high influence of self direct learning on academic resilience is the same as the results of research by Ramadhana, et al. (2021) which states that self direct learning is the most influential factor in improving the three dimensions of academic resilience with the

Cassidy ARS-30 measurement scale. Self-directed learning encourages students to set goals, work in self-regulation and shows important ways to increase persistence, especially when students find things challenging or when resolution of target problems does not come immediately. Persistence in self-direct learning represents students' academic resilience.

Almahasees, Mohsen, and Amin (2021) state that online learning makes students self-direct learning, low cost, convenience, and flexibility. The accessibility aspect of the perception of online learning by Adedoyin and Soykan (2020) and Gautam (2020) can make students access material online at any time so as to encourage students to learn independently where students play a role in gaining knowledge from various sources without time and space limits. Amelia, et al. (2020) explained that the support and motivation from teachers and parents is also one of the factors for the high level of student academic resilience while studying during the pandemic. Good interaction between teachers and students can increase learning activities and achievement. Self-confidence and self-awareness which are part of self direct learning also affect students' academic resilience.

The role of motivation in self direct learning according to Aliyev, Akbaş, & zbay (2021) that academic motivation is an internal protective factor that can mediate between external factors of parenting style and the value of ecological education and academic resilience. It was concluded that despite having external protective factors for academic resilience, individuals still need internal protective factors to become more resilient academically. The results of the study indicate that the presence of intrinsic motivation can be considered as a prerequisite for academic resilience.

The influence of perceptions about online learning, digital literacy, self-direct learning on students' academic resilience

The concept of resilience is well known to Bandura that self-efficacy is the basis for explaining resilience. This is confirmed by the research of Fitrah, Fatihah, and Madihie (2020) that self-efficacy is the basis for describing resilience in relation to an individual's ability to think and act in the face of adversity. The results of the simultaneous regression equation significance test which can be seen in the F test show the F value for students' academic resilience of 241,829 with a significant value of 0.000. The value of $F_{count} 241.829 > F_{table} 2.628$ and a significant value of $0.000 < 0.05$ means that there is an influence of perceptions about online learning, digital literacy, and self-direct learning on students' academic resilience simultaneously. The magnitude of the influence of the three independent variables, namely perceptions of online learning, digital literacy, and self-direct learning on students' academic resilience can be seen from the results of the coefficient of determination test (R Square) which shows a figure of 64.8%. This means that the perception variable about online learning, digital literacy, and self direct learning has an effect on students' academic resilience by 64.8%, which means that academic resilience can be explained by the three independent variables studied by 64.8%, while the remaining 35.2% came from other variables not examined in this study.

There is a significant influence of the perception variable about online learning, digital literacy, and self-direct learning on students' academic resilience simultaneously according to the research results of Rachmawati, Multisari, Triyono, Simon, and Costa (2021) showing that the formation of academic resilience requires several aspects including: (1) knowledge and skills that refer to competence; (2) self-efficacy; (3) good personal character; (4) contribute to self and others; (5) adaptive; and (6) able to control actions and decisions. This is in accordance with the three independent variables studied.

First, the perception variable about online learning as a form of knowledge and adaptive to online learning so that students' perceptions that arise about online learning are able to control actions and decisions in dealing with learning difficulties during the pandemic. This reflects the level of student academic resilience. Second, the digital literacy variable as a form of knowledge, skills, character, adaptive so as to be able to control decisions and actions in dealing with learning difficulties during a pandemic that reflects the level of student academic resilience. Third, self-direct learning variables as a form of knowledge, skills, self-efficacy, and character in controlling actions and decisions in dealing with learning difficulties during the pandemic so that they reflect students' academic resilience. Therefore, the perception variable about online learning, digital literacy, and self-direct learning can explain 64.8% of students' academic resilience, the independent variable so that they are able to control actions and decisions in the learning difficulties they face.

The effect of the three variables on students' academic resilience simultaneously is also in line with the results of research by Ramadhana, et al (2021) examining the variables of digital literacy, self direct learning, learner control, and learning motivation as factors of online learning readiness for academic resilience. The results of the study explain that self-direct learning and digital literacy simultaneously are factors that influence academic resilience. The measurement scale used in the research of Ramadhana, et al (2021) is the same as the measurement scale of this study, namely by using the Cassidy (2016) measurement scale known as The Academic Resilience Scale-30 (ARS 30). The ARS scale compiled by Cassidy is also based on Bandura's (1997) concept of self-efficacy.

Three factors that are used as measuring tools in students' academic resilience are perseverance, self-reflection and adaptive seeking for help, and negative affection and

emotional response. First, persistence is related to hard work, strong determination, sticking to plans and goals, utilizing feedback, utilizing feedback, solving problems innovatively, and understanding adversity as an opportunity. Persistence is a reflection of self-direct learning because students have the drive to direct themselves to be involved in online learning activities and followed by an understanding of learning needs and learning goals so that they can improve their learning achievement and achieve learning goals. The concept of self direct learning is theoretically relevant to Cassidy's ARS 30 measurement scale and reflects the often cited definition of psychological resilience (Hoge, Austin, & Pollack, 2007).

Second, self-reflection and adaptive in seeking help when facing difficulties, one's belief in recognizing strengths and weaknesses and adaptability can be reflected by digital literacy. Digital literacy is the skill of using digital tools with individual awareness, attitude and ability in identifying, managing, analyzing, and synthesizing information so that they are able to build new knowledge, make media expressions, and communicate with others so that they are able to adapt in seeking help when faced with difficulties in learning.

Third, negative affect and emotional responses lead to individual reactions such as anxiety, stress, and individual attempts to avoid negative responses. Negative affect and emotional responses are related to students' perceptions of online learning. The limitation of distance in learning during the pandemic recommends carrying out online learning. Research by Alzahrani & O'Toole (2017), Joyce & Kirakowski (2015), and Wei & Chou (2019) shows that students' attitudes towards the internet are important in the future use of technology in online learning settings. This means that if students have a good perception of online learning, they will be able to deal with the academic stress they experience.

VII. Conclusions and Recommendations

This study was able to show the influence of internal protective factors including perceptions of online learning, digital literacy, self-directed learning on students' academic resilience. This research study provides new insights for educational stakeholders regarding students' academic resilience during learning during a pandemic that can be used as a benchmark for measuring student resilience in the face of learning loss. This quantitative research study also suggests applying psychosocial-based learning practices to foster interest in learning and self-competence after going through two years of online learning where learning loss occurred. Future research is expected to have two things, namely (1) investigating factors that mediate academic resilience on the success of online learning in relation to knowledge acquisition, performance, teacher attitudes, factors related to technology, and gender differences, and (2) developing learning models as strategies in improving students academic resilience.

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